

1. An NO<sub>x</sub> removal catalyst management unit for use with an NO<sub>x</sub> removal apparatus, the management unit being provided for managing a plurality of NO<sub>x</sub> removal catalyst layers provided in a flue gas NO<sub>x</sub> removal apparatus, characterized in that the management unit comprises NO<sub>x</sub> measurement means for determining NO<sub>x</sub> concentrations on the inlet and outlet sides of respective NO<sub>x</sub> removal catalyst layers; NH<sub>3</sub> measurement means for determining NH<sub>3</sub> concentrations on the inlet and outlet sides of the same NO<sub>x</sub> removal catalyst layers; and percent NO<sub>x</sub> removal determination means for determining percent NO<sub>x</sub> removal ( $\eta$ ) on the basis of an inlet mole ratio (i.e., inlet NH<sub>3</sub>/inlet NO<sub>x</sub>) .

2. An NO<sub>x</sub> removal catalyst management unit according to claim 1 for use with an NO<sub>x</sub> removal apparatus, wherein the percent NO<sub>x</sub> removal ( $\eta$ ) is determined on the basis of NH<sub>3</sub> concentrations.

3. An NO<sub>x</sub> removal catalyst management unit according to claim 2 for use with an NO<sub>x</sub> removal apparatus, wherein the percent NO<sub>x</sub> removal ( $\eta$ ) is determined on the basis of the following equation (1) :

$$\eta = \{ (inlet \text{ NH}_3 - outlet \text{ NH}_3) / (inlet \text{ NH}_3 - outlet \text{ NH}_3 + outlet \text{ NO}_x) \} \times 100 \times (\text{evaluation mole ratio} / \text{inlet mole ratio}) \quad (1).$$

4. An NO<sub>x</sub> removal catalyst management unit according to any of claims 1 to 3 for use with an NO<sub>x</sub> removal apparatus, which management unit further includes transmission means for

transmitting concentration values determined by the NO<sub>x</sub> measurement means and the NH<sub>3</sub> measurement means to the percent NO<sub>x</sub> removal determination means, wherein the percent NO<sub>x</sub> removal determination means determines the percent NO<sub>x</sub> removal ( $\eta$ ) of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses.

5. A method for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, the method being provided for managing a plurality of NO<sub>x</sub> removal catalyst layers provided in a flue gas NO<sub>x</sub> removal apparatus, characterized in that the method comprises determining NO<sub>x</sub> concentrations and NH<sub>3</sub> concentrations on the inlet and outlet sides of respective NO<sub>x</sub> removal catalyst layers; determining percent NO<sub>x</sub> removal ( $\eta$ ) on the basis of an inlet mole ratio (i.e., inlet NH<sub>3</sub>/inlet NO<sub>x</sub>) ; and evaluating performance of respective NO<sub>x</sub> removal catalyst layers on the basis of the percent NO<sub>x</sub> removal ( $\eta$ ).

6. A method according to claim 5 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the percent NO<sub>x</sub> removal ( $\eta$ ) is determined on the basis of NH<sub>3</sub> concentrations.

7. A method according to claim 6 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the percent NO<sub>x</sub> removal ( $\eta$ ) is determined on the basis of the following equation (1):

$$\eta = \{ (inlet \ NH_3 - outlet \ NH_3) / (inlet \ NH_3 - outlet \ NH_3 + outlet \ NO_x) \} \times 100 \times (\text{evaluation mole ratio} / \text{inlet mole ratio}) \quad (1).$$

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8. A method according to claim 5 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the method further comprises performing restoration treatment of an NO<sub>x</sub> removal catalyst layer having a catalytic performance deteriorated to a predetermined level, on the basis of results of performance evaluation of the respective NO<sub>x</sub> removal catalyst layers.

9. A method according to claim 8 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the performance restoration treatment is replacement of the NO<sub>x</sub> removal catalyst layer with a new NO<sub>x</sub> removal catalyst layer, replacement of the NO<sub>x</sub> removal catalyst layer with a regenerated NO<sub>x</sub> removal catalyst layer, replacement of the NO<sub>x</sub> removal catalyst layer with an NO<sub>x</sub> removal catalyst layer inverted with respect to the direction of the flow of discharge gas, or replacement the NO<sub>x</sub> removal catalyst layer with an NO<sub>x</sub> removal catalyst layer from which a deteriorated portion has been removed.

10. A method according to any of claims 5 to 7 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the method further comprises determining the percent NO<sub>x</sub> removal of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses and evaluating catalytic performance of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses.

11. A method according to claim 8 for managing an NO<sub>x</sub>

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removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the method further comprises determining the percent NO<sub>x</sub> removal of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses and evaluating catalytic performance of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses.

12. A method according to claim 9 for managing an NO<sub>x</sub> removal catalyst for use with an NO<sub>x</sub> removal apparatus, wherein the method further comprises determining the percent NO<sub>x</sub> removal of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses and evaluating catalytic performance of respective NO<sub>x</sub> removal catalyst layers included in a plurality of flue gas NO<sub>x</sub> removal apparatuses.